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IS 3593 (1979): Solvent-Extracted Rice Bran as Livestock Feed [FAD 5: Livestock Feeds, Equipment and Systems]



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2004

Indian Standard
SPECIFICATION FOR
SOLVENT-EXTRACTED RICE BRAN
AS LIVESTOCK FEED

(*Second Revision*)

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SPECIFICATION FOR
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AS LIVESTOCK FEED
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**AMENDMENT NO. 1 SEPTEMBER 1995
TO
IS 3593 : 1979 SPECIFICATION FOR SOLVENT-
EXTRACTED RICE BRAN AS LIVESTOCK FEED**

(Second Revision)

(Page 3, clause 0.3, line 5) — Substitute 'crude fat' for 'crude fact'.

(Page 5, clause 7.2, line 2) — Substitute 'IS 1070 : 1992' for 'IS : 1070 - 1977*'.*

(Page 5, foot-note with '' mark) — Substitute 'Reagent grade water (third revision)' for the existing foot-note.*

(FAD 5)

Reprography Unit, BIS, New Delhi, India

Indian Standard
SPECIFICATION FOR
SOLVENT-EXTRACTED RICE BRAN
AS LIVESTOCK FEED
(*Second Revision*)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 29 May 1979, after the draft finalized by the Animal Feeds Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Solvent-extracted rice bran now finds extensive application as an ingredient in compounded livestock feed as well as in poultry feeds due to the fact that it is more stable over a prolonged period if proper quality control is exercised in its production. It is therefore expected that this standard will help in exercising necessary quality control and ensure production of solvent-extracted rice bran of proper quality.

0.3 Indian Standard specification (IS:3593E-1966) was first issued as an *Emergency* standard based on the data made available to the *Ad-hoc* Consultative Panel set up for the purpose on the recommendation of Economic Secretaries of the Government of India. The Committee decided to revise it again in respect of its requirements pertaining to crude fat or ether extract, crude protein and acid insoluble ash. Opportunity is also taken by specifying more general test methods for uniformity and ease.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for solvent-extracted rice bran for use as livestock feed.

*Rules for rounding off numerical values (*revised*).

2. GRADES

2.1 Solvent-extracted rice bran shall be of two grades, namely, Grade 1 and Grade 2.

3. REQUIREMENTS

3.1 **Description** — The solvent-extracted rice bran shall be obtained by extraction of oil by means of a solvent from the rice bran. The rice bran is the pericarp or bran layer of the rice obtained during the process of regular milling of rice. The solvent-extracted rice bran shall have been subjected to heat and steam treatment under controlled and regulated conditions so as to remove traces of solvent. The material shall be free from musty and stale odour, sour or rancid taste, dirt and extraneous matter. The material shall be free from fungal growth and insect infestation.

3.2 **Solvent for Extraction** — Only hexane of food grade conforming to IS: 3470-1966* shall be used for extracting oil from rice bran.

3.3 The material shall also conform to the requirements prescribed in Table 1.

TABLE 1 REQUIREMENTS FOR SOLVENT-EXTRACTED RICE BRAN AS LIVESTOCK FEED

SL No.	CHARACTERISTIC	REQUIREMENT		METHOD OF TEST [REF TO CL No. of IS:7874 (PART I)-1975*]
		Grade 1	Grade 2	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	10	10	4
ii)	Crude protein (nitrogen $\times 6.25$), percent by mass, <i>Min</i>	14	12	5
iii)	Crude fibre, percent by mass, <i>Max</i>	12	16	8
iv)	Acid insoluble ash, percent by mass, <i>Max</i>	6	10	10

NOTE — The requirements for items (ii) to (iv) are on moisture free basis.

*Methods of tests for animal feeds and feeding stuffs: Part I General methods.

4. PACKING

4.1 Unless otherwise agreed to between the purchaser and the vendor, the material shall be packed in sound jute bags. The mouth of each bag shall be either machine-stitched or rolled over and hand-stitched with strong jute twine.

*Specification for hexane, food grade.

5. MARKING

5.1 Each bag shall be marked with the following information:

- a) Name and grade of the material,
- b) Name of the manufacturer,
- c) Batch or code number,
- d) Net mass in kg, and
- e) Date of packing.

5.1.1 The bags may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. SAMPLING AND CRITERIA FOR CONFORMITY

6.1 Representative samples of the material for tests shall be drawn according to the method prescribed in Appendix A.

7. TESTS

7.1 The tests shall be carried out by appropriate methods referred to in col 5 of Table 1.

7.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS: 1070-1977*) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

APPENDIX A

(*Clause 6.1*)

SAMPLING AND CRITERIA FOR CONFORMITY OF SOLVENT-EXTRACTED RICE BRAN AS LIVESTOCK FEED

A-1. GENERAL REQUIREMENTS OF SAMPLING

*Specification for water for general laboratory use (*second revision*).

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A-1.0 In drawing, preparing, storing and handling samples, care should be taken that the properties are not affected. The following precautions and directions shall be observed.

A-1.1 Samples shall be taken in a protected place not exposed to damp air, dust or soot.

A-1.2 The sampling instrument shall be clean and dry when used.

A-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

A-1.4 The samples shall be placed in clean and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

A-1.5 Each container shall be sealed air-tight with a glass stopper or a suitable closer after filling in such a way that it is not possible to open and reseal it without detection, and marked with full details of sampling, date of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

A-1.6 Samples shall be stored in such a manner that there is no deterioration of the material.

A-1.7 Sampling shall be done by a person agreed to between the purchaser and the vendor and if desired by any of them, in the presence of the purchaser (or his representative) and the vendor (or his representative).

A-2. SCALE OF SAMPLING

A-2.1 Lot — The quantity of the rice bran of the same grade extracted in one chamber under relatively similar conditions in a day shall constitute a lot.

NOTE — Relatively similar conditions would mean the use of raw materials having insignificant variations, similar conditions of manufacture, etc.

A-2.1.1 Samples shall be tested for each lot for ascertaining conformity of the material to the requirements of this specification.

A-2.2 The number of bags to be selected from the lot shall depend on the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

A-2.3 The bags shall be chosen at random from the lot. In order to ensure the randomness of the selection, a random number table shall be used. For

guidance and use of random number tables, IS:4905-1968* may be referred. In the absence of a random number table, following procedure may be adopted:

Starting from any bag in the lot count them as 1, 2, 3.....etc upto r and so on. Every r th bag so counted shall be withdrawn so as to constitute the required sample size, where r is the integral part of N/n , N being the number of bags in the lot and n the sample size.

TABLE 2 NUMBER OF BAGS TO BE SELECTED FOR SAMPLING
(Clause A-2.2)

LOT SIZE	NO. OF BAGS TO BE SELECTED FOR SAMPLING
N	n
(1)	(2)
Up to 50	1
51 „ 100	3
101 „ 300	4
301 „ 500	5
501 and above	7

A-3. PREPARATION OF THE SAMPLES

A-3.1 Preparation of Individual Samples — Draw with an appropriate sampling instrument equal quantities of the material from the top, bottom and the sides of each bag selected according to Table 2. The total quantity of the material drawn from each bag shall be not less than 1.5 kg. Mix all the portions of the material drawn from the same bag thoroughly. Take out about 0.75 kg of material and divide into three parts. Each portion, thus obtained, shall constitute the test sample, representing that particular bag and shall be transferred immediately to clean and dry sample containers and sealed air-tight. These shall be labelled with particulars given under A-1.5. The individual samples obtained as above shall be formed into three sets in such a way that each set has a test sample representing each bag selected. One of the sets shall be for the purchaser, another for the vendor, and the third for the referee.

A-3.2 Preparation of Composite Samples — From the mixed material from each selected bag remaining after the individual samples have been taken, equal quantities of the material from each bag shall be taken and mixed up together so as to form a composite sample weighing not less than 0.75 kg. This composite sample shall be divided into three equal parts and transferred to clean and dry containers and labelled with the particulars given under A-1.5 and sealed air-tight. One of these samples shall be for the purchaser, another for the vendor, and the third for the referee.

*Methods for random sampling.

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A-3.3 Referee Sample — Referee samples shall consist of a set of test samples (*see* A-3.1) and composite samples (*see* A-3.2) and shall bear the seals of the purchaser and the vendor and shall be kept at a place agreed to between the two.

A-4. TESTING OF SAMPLES

A-4.1 Tests for acid insoluble ash shall be conducted individually on each of the samples constituting a set of test samples (*see* A-3.1).

A-4.2 Tests for the remaining characteristics, prescribed in Table 1, shall be conducted on the composite sample (*see* A-3.2).

A-5. CRITERION FOR CONFORMITY

A-5.1 A lot shall be considered as conforming to the specification when:

- a) each of the test results for acid insoluble ash satisfies the requirement as specified in Table 1, and
- b) the test results on the composite sample satisfy the other requirements specified in Table 1.

A-5.2 If one or more test results do not satisfy the requirements for acid insoluble ash, the following procedure shall be adopted for determining the conformity of the material for this characteristic.

Calculate the mean and range as follows:

$$\text{Mean } (\bar{X}) = \frac{\text{Sum of the test results}}{\text{Number of test samples}}$$

$$\text{Range } (\bar{R}) = \text{Difference between the maximum and the minimum values of the test results.}$$

The requirement for acid insoluble ash shall be considered as fulfilled if $\bar{X} + 0.4R$ is equal to or less than the requirement for acid insoluble ash.



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